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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
08/928,893	09/12/1997	HEIKKI HEIKKILA	85940/15	1188

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EXAMINER

NAFF, DAVID M

ART UNIT

PAPER NUMBER

1651

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Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**Application No.  
08/1928893Applicant(s)  
Heitkila et alExaminer  
MaffGroup Art Unit  
165**—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—****Period for Reply**A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

**Status** Responsive to communication(s) filed on 4/15/02 This action is **FINAL**. Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 1 1; 453 O.G. 213.**Disposition of Claims** Claim(s) 1, 3, 5-13, 15, 16, 19-21 + 23-34 is/are pending in the application. Of the above claim(s) 32-34 is/are withdrawn from consideration. Claim(s) \_\_\_\_\_ is/are allowed. Claim(s) 1, 3, 5-13, 15, 16, 19-21 + 23-34 is/are rejected. Claim(s) \_\_\_\_\_ is/are objected to. Claim(s) \_\_\_\_\_ are subject to restriction or election requirement.**Application Papers** See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948. The proposed drawing correction, filed on \_\_\_\_\_ is  approved  disapproved. The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner. The specification is objected to by the Examiner. The oath or declaration is objected to by the Examiner.**Priority under 35 U.S.C. § 119 (a)-(d)** Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d). All  Some\*  None of the CERTIFIED copies of the priority documents have been received. received in Application No. (Series Code/Serial Number) \_\_\_\_\_. received in this national stage application from the International Bureau (PCT Rule 1.7.2(a)).

\*Certified copies not received: \_\_\_\_\_.

**Attachment(s)** Information Disclosure Statement(s), PTO-1449, Paper No(s). 39, 41 + 42 (filed 2/11, 4/15 + 6/3/02) Interview Summary, PTO-413 Notice of Reference(s) Cited, PTO-892 Notice of Informal Patent Application, PTO-152 Notice of Draftsperson's Patent Drawing Review, PTO-948 Other \_\_\_\_\_**Office Action Summary**

In a response of 4/15/02 to a restriction requirement of 2/13/02, applicants elected Group I claims 1, 3, 5-13, 15, 16, 19-21 and 23-31 with traverse. In the traverse, applicants assert that the inventions of Groups I and II are sufficiently related to be examined together.

5 However, even though there is some relationship, for reasons in the restriction requirement, the groups are distinct and are therefore restrictable.

Claims 32-34 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no 10 allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 40 (filed 4/15/02).

Claims examined on the merits are 1, 3, 5-13, 15, 16, 19-21 and 23-31

The text of those sections of Title 35, U.S. Code not included in 15 this action can be found in a prior Office action.

Claim 31 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had 20 possession of the claimed invention.

Steps and conditions as required by claim 31 are not found in the specification. Page 9, lines 4-13, does not describe a method as required by claim 31 of producing an extracted biomass and a prehydrolyzate.

Claims 23-31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In line 24 of claim 23, "that" should be -- than -- to be clear.

5 Claim 31 is confusing and unclear in that the meaning and scope of "biomass" in line 6 is unclear. Additionally, there is no antecedent basis for biomass being formed.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made 10 in this Office action:

A person shall be entitled to a patent unless -

15 (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this 20 application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

25 Claims 1, 3, 5-10, 12, 13, 15, 16, 19-21 and 23-30 are rejected under 35 U.S.C. 102 (e) as being anticipated by Heikkila et al (5,081,026).

Heikkila et al disclose (paragraph bridging cols 2 and 3) fermenting a hydrolyzed lignocellulose-containing material to produce a hydrolyzate

containing xylose and hexoses, fermenting the hydrolyzate with yeast to produce a fermented product containing xylitol, ethanol and yeast, removing yeast, removing ethanol by evaporation or distillation, chromatographically separating a xylitol-rich fraction and recovering 5 xylitol from the xylitol-rich fraction by crystallizing the xylitol.

Claims 1, 3, 5-13, 15, 16, 19-21 and 23-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heikkila et al in view of Chahal (5,047,332).

Heikkila et al is described above.

10 Chahal discloses (col 5, lines 20-29) producing ethanol for use as fuel from lignocellulose-containing biomass by fractionating lignocellulose into cellulose, lignin and hemicelluloses, hydrolyzing the cellulose with cellulase to produce glucose and fermenting the glucose with yeast to produce ethanol.

15 It would have been obvious to obtain ethanol in the process of Heikkila et al as suggested by Chahal by hydrolyzing cellulose of lignocellulose to glucose so that yeast can ferment the glucose to ethanol. The xylose obtained by Heikkila et al results from hemicellulose (col 1, lines 55-61). It would have been apparent from

20 Chahal that lignocellulose material contains cellulose in addition to hemicellulose, and the cellulose can be hydrolyzed with cellulase to glucose for fermenting to ethanol. Thus, it would have been expected that cellulose in addition to hemicellulose is present in the lignocellulose material used by Heikkila et al (col 3, lines 51-68) as a 25 starting material, and it would have been obvious to hydrolyze the

cellulose to glucose to provide production of ethanol for use as suggested by Chahal. Producing xylitol and ethanol in separate steps as in claim 31 would have been a matter of obvious choice depending on individual preference and convenience within the ordinary skill of the 5 art.

Applicant's arguments filed 11/29/01 have been fully considered but they are not persuasive.

Applicants urge that Chahal is not prior are under 35 U.S.C. 102 (b) and (a). However, Chahal has not been applied under 102, but only under 10 103. Chahal has a filing date of 9/3/86 and is clearly a reference under 103.

Applicants assert that Heikkila et al is not available under 102 (a) and (b) because this application is a 371 of PCT/F191/00011 based on foreign priority application 900220 filed in Finland on 1/15/90.

15 However, Heikkila et al is clearly a reference under 102 (e).

Applicants urges that the present process converts a greater amount of raw material. However, Heikkila et al convert substantially all of the starting raw material.

Claims 1, 3, 5-13, 15, 16, 19-21 and 23-31 are rejected under the 20 judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-28 of U.S. Patent No. 5,081,026 in view of Chahal for reasons set forth above in the 35 U. S. C. 103 rejection.

It would have been obvious to produce ethanol in the claimed process of the patent to obtain ethanol for use as suggested by Chahal by

hydrolyzing cellulose in the starting material with cellulase to obtain glucose that can be fermented to ethanol.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David M. Naff whose telephone 5 number is (703) 308-0520. The examiner can normally be reached on Monday-Thursday and every other Friday from about 8:30 AM to about 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, a message can be left on voice mail.

10 If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Wityshyn, can be reached at telephone number (703) 308-4743.

The fax phone number is (703) 872-9306 before final rejection or (703) 872-9307 after final rejection.

15 Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0196.

20 DMN  
6/28/02



DAVID M. NAFF  
PRIMARY EXAMINER  
ART UNIT 1651